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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/574,835

04/06/2006

Tetsushi Sakai

60562.00009

5057

32294

7590

12/23/2008

SQUIRE, SANDERS & DEMPSEY L.L.P.

8000 TOWERS CRESCENT DRIVE

14TH FLOOR

VIENNA, VA 22182-6212

EXAMINER

ARENA, ANDREW OWENS

ART UNIT

PAPER NUMBER

2811

MAIL DATE

DELIVERY MODE

12/23/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/574,835

Applicant(s)

SAKAI ET AL.

Examiner

Andrew O. Arena

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2008.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
4a) Of the above claim(s) 16-33 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-15 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-893)
4) ☐ Interview Summary (PTO-413)
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____
Paper No(s)/Mail Date 4/6/2008

DETAILED ACTION

Election/Restrictions

Applicant's election of Invention I and corresponding claims 1-15 in the reply filed on 09/04/2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse. See MPEP § 818.03(a).

Accordingly, claims 16-33 are withdrawn from further consideration per 37 CFR 1.142(b) as drawn to a nonelected invention, there being no allowable linking claim.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 15 recite islands "insulated...from each other above a convex part" which is not precise as to whether the islands are only insulated from each other above the convex parts but not insulated from each other elsewhere (which is not supported) or whether the islands are both above a convex part and also isolated from each other. It is also unclear if the islands are entirely above the convex parts or just parts of them and also unclear if all the islands are above convex parts or just some of them.

Claim 5 recites "said island parts laminated on top of each other and composed of two layers" without antecedent basis, neither parent claim 4 nor claim 5 define island parts laminated on top of each other nor composed of two layers.

Claim 14 recites "island parts are...a...layer" but several parts cannot be a single layer. Perhaps what is meant is that "island parts are each...a...layer".

Claim Rejections - 35 USC § 102

Statute 35 U.S.C. § 102 is the basis for anticipation rejections made herein:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-11 and 15, insofar as they can be understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Himi (JP 07-335735, IDS cited as AH).

RE claim 1, Himi discloses a semiconductor substrate comprising (Drawing 1e):

a basis material made of silicon (1), having a surface with an uneven part formed thereon (e.g., central portion of 1 in Fig 1e is uneven); and

a plurality of island parts (2) made of silicon, electrically insulated from said basis material (by 3) as well as from each other (by 8),

said plurality of islands each being above a convex part of said basis material.

RE claim 2, Himi discloses an insulation component (3) formed between said basis material and said island parts and composed of two layers (e.g., left & right of 5).

RE claim 3, Himi discloses said plurality of island parts are formed in a single plane generally parallel to a main surface of said basis material.

RE claim 4, Himi discloses said plurality of island parts are formed in a plurality of planes generally parallel to the main surface of said basis material, and formed in a multi-stage above the convex part of said basis material (multiple such planes exist in multiple stages, each of which has island parts formed in it).

RE claim 5, Himi discloses an insulation component formed between said island parts. The remaining recitation cannot be well understood. Composition of two layers (e.g., left & right of 5) can be seen in both the insulation component and island parts.

RE claim 6, Himi discloses said plurality of island parts (2) are buried in the insulation component (3+8) provided on said basis material (1).

RE claim 7, Himi discloses said insulation component is made of silicon oxide.

RE claim 8, Himi discloses distances between a main surface of said basis material facing to said island parts and main surfaces of said island parts facing to said basis material are different from each other (as recited in the claim, there are multiple distances comprising the distance between said surfaces, at least some are different).

RE claim 9, Himi discloses the semiconductor substrate is composed of an island part located at the distance as a first distance and an island part located at the distance as a second distance (e.g., the first and second could be the same, or, different sub-distances comprising the distance between main surfaces are different).

RE claim 10, Himi discloses an island part (2) made of silicon, being in contact (indirectly, through 3) with said basis material (1) and electrically insulated from the island parts which are electrically insulated from said basis material.

RE claim 11, Himi discloses

said plurality of island parts are formed in a multi-stage above each of the convex part (not single dimensional, there are vertical "stages" comprising thickness); and the multi-stage island parts (arbitrarily chosen) are different from each other in thickness (one may freely define "stages" and they may be of differing thickness).

RE claim 15, Himi discloses a semiconductor device comprising a semiconductor substrate comprising (Drawing 1e):

a basis material made of silicon (1), having a surface with an uneven part formed thereon (e.g., central portion of 1 in Fig 1e is uneven); and

a plurality of island parts (2) made of silicon, electrically insulated from said basis material (by 3) as well as from each other (by 8),

said plurality of islands each being above a convex part of said basis material.

Claim Rejections - 35 USC § 103

Statute 35 U.S.C. § 103(a) is the basis for obviousness rejections made herein:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12 & 13 are rejected under 35 U.S.C. § 103(a) as unpatentable over Himi as applied to claim 1 above.

RE claims 12 & 13, Himi discloses the claimed thickness as result effective variables (see machine translation ¶21 and ¶24).

Himi differs from the claims only in not explicitly disclosing thickness values.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to choose the claimed values; at least to find a suitable value.

Claim14 is rejected under 35 U.S.C. § 103(a) as unpatentable over Himi as applied to claim 1 above, further in view of Ushiku (JP 10-209453, IDS cited as AF).

RE claim 14, Himi differs from the claimed invention only in not explicitly and clearly disclosing strained silicon.

It is a fundamental principle of the silicon semiconductor device arts that carrier mobility is affected by strain in the silicon layer.

Ushiku discloses stressing the overlying silicon layer.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made that, in view of Ushiku, the island parts are formed as a strained silicon layer; at least to optimize the carrier mobility.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew O. Arena whose telephone number is (571)272-5976. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne A. Gurley can be reached on 571- 272-1670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew O. Arena/
Examiner, Art Unit 2811
22 December 2008

/Lynne A. Gurley/
Supervisory Patent Examiner, Art
Unit 2811